

Claims

What is claimed is:

1. A projection type display unit, comprising,  
an imager defining a plurality of controllable pixels;  
a light source for exclusively generating light of a selected color, said light  
source arranged for transmitting said light through said imager to produce an  
image; and

5 a projector lens for magnifying and focusing said image for projection on a  
screen;

wherein said light source is comprised of a field emission device exciting a  
10 resonant microcavity anode with an active region, said active region having a  
phosphor disposed therein for emitting light of said selected color.

2. The projection display unit according to claim 1 wherein said imager is an  
LCOS device.

3. The projection display unit according to claim 1 wherein three said imagers  
are provided and three said field emission devices are provided, each of said  
field emission devices exclusively generating a distinct color of light for  
projection through a respective one of said imagers to produce three distinct  
5 color images.

4. The projection display unit according to claim 3 wherein said three field  
emission devices produce red, green and blue light respectively.

5. The projection display unit according to claim 4 further comprising an optical  
combiner, said optical combiner merging each of said distinct color images to  
form a single composite image.

6. An illumination source for a LCOS projection system, comprising:

a vacuum cavity;

an array of field emission display points on a first side of the vacuum cavity;

5 an array of resonant microcavity anodes on a second side of the vacuum cavity for generating light of a selected color;

wherein said field emission display points are electron emitters used to excite array of resonant microcavity anodes to exclusively generate light of said selected color.

7. The illumination source according to claim 6 wherein said array of resonant microcavity anodes is arranged so that said light is projected through an LCOS device to produce an image.

8. The illumination source according to claim 7 further comprising a projector lens for magnifying and focusing said image for projection on a screen.

9. A method for displaying an image, comprising,  
exciting an array of resonant microcavities configured for exclusively emitting light of a selected color;  
projecting said light through an LCOS imager defining a plurality of controllable pixels to produce an image; and  
5 magnifying and focusing said image through a lens for projection on a screen.

10. The method according to claim 9 further comprising the steps of:  
optically combining said image produced with said light of said selected color with at least one other image of a second selected color distinct from said first selected color.

11. The method according to claim 10 wherein said colors are selected from the group consisting of red, green and blue.